7. UNAVOIDABLE ADVERSE IMPACTS AND IRREVERSIBLE IRRETRIEVABLE COMMITMENT OF RESOURCES

7.1 UNAVOIDABLE ADVERSE IMPACTS

Despite the mitigation measures identified in Chapter 6, there would be some unavoidable adverse impacts resulting from the implementation of the proposed action alternatives. These include the clearing of 2 to 2.8 ha (5 to 7 acres) of forested land resulting from the construction of the proposed waste treatment facility and loss of this habitat by plants and animals for a period of at least a decade (Sections 4.1 and 4.3). The area would be revegetated after closure and D&D of the facility. An additional 0.3 to 0.8 ha (0.5 to 2 acres) of land would be required indefinitely if the Treatment and Waste Storage at ORNL Alternative is implemented. This land would be used for the waste storage facilities, which would be required for this alternative.

Some secondary wastes and emissions would be created despite best efforts at source reduction, recycling, and other best management practices (Section 4.6). The potential for transportation and other accidents can be reduced by best management practices but not entirely eliminated. Some potential risks are unavoidable as a function of the treatment and transportation process (Section 4.10). Some slight, temporary increases in noise are also unavoidable (Section 4.12).

7.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The proposed action would involve the irreversible or irretrievable commitment of land, energy, and materials. The commitment of a resource is irreversible if its primary or secondary impacts limit future options for the resource. An irretrievable commitment refers to the use or consumption of resources that are neither renewable nor recoverable for later use by future generations. Construction, operation, and eventual D&D would result in a permanent commitment of materials such as steel and concrete, and would consume energy in forms such as gasoline, diesel fuel, and electricity. Water use would support construction, operation and D&D. There would be an irreversible and irretrievable commitment of current natural resources.

The 11,250 to 45,000 MW of electrical energy required for the project, depending on the alternative selected, would be committed and consumed (Section 4.9). Some building materials, steel and concrete, for the process building and related facility support would be used. Some portion of these materials cannot be reused. Waste packaging and storage materials would also be irreversibly committed to this use.

The waste storage locations, as part of the Treatment and Waste Storage Alternative at ORNL, would require what some may consider an irreversible and irretrievable commitment of storage space up to 0.8 ha (2.0 acres). The Treatment and Waste Storage at ORNL Alternative would require a commitment of land for storage space. Depending on the treatment alternative selected, land indefinitely committed as storage space would be approximately 0.2 ha (0.75 acres) for the low-temperature drying process, 0.6 ha (1.5 acres) for the vitrification process, or 0.8 ha (2.0 acres) for the cementation process (Section 4.1). As a practical matter, this would constitute an irreversible and irretrievable commitment of this space. The land, which is forested, would be permanently converted to industrial use. In addition, 0.012 ha (0.03 acre) of wetland would be irreversibly lost when it is drained.

There would, however, be no losses of federally protected threatened or endangered species or critical habitat (Section 4.5.3).

Although not directly related to this proposed action, the High Flux Isotope Reactor access road (Old Melton Valley Road) upgrade, which provides access to both the High Flux Isotope Reactor and the proposed site, also resulted in an irreversible and irretrievable commitment of 4 ha (10 acres) of formerly forest habitat to industrial use. This action was evaluated under a separate NEPA action, and a categorical exclusion was prepared.